



XBee Pulse I/O Single Port

Assembly Instructions

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TOOLS:

- [Solder, lead-free \(1\)](#)
- [Soldering iron \(1\)](#)



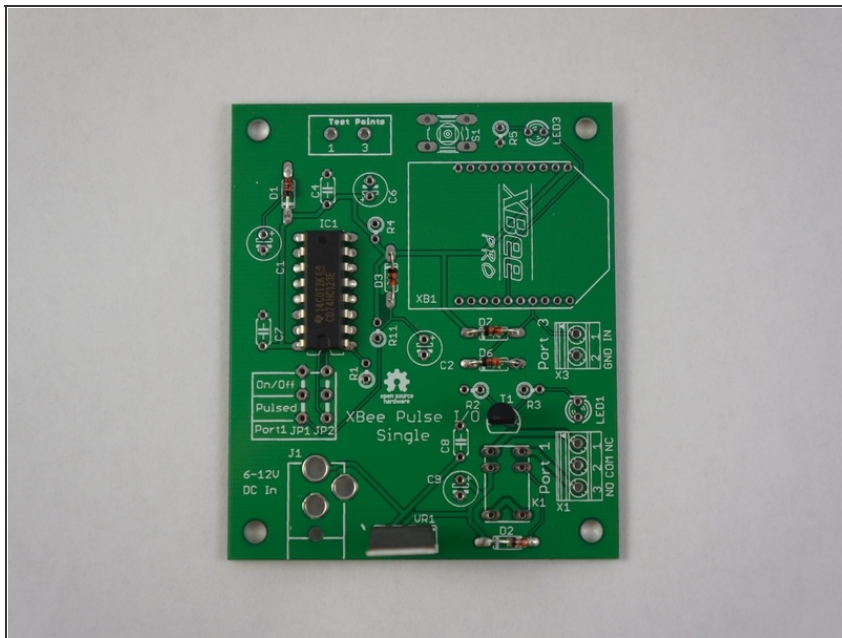
PARTS:

- [XBee Pulse I/O SPv1 BOM, Digi-Key](#)
[Part Number: 6958220-KIT-ND \(1\)](#)

SUMMARY

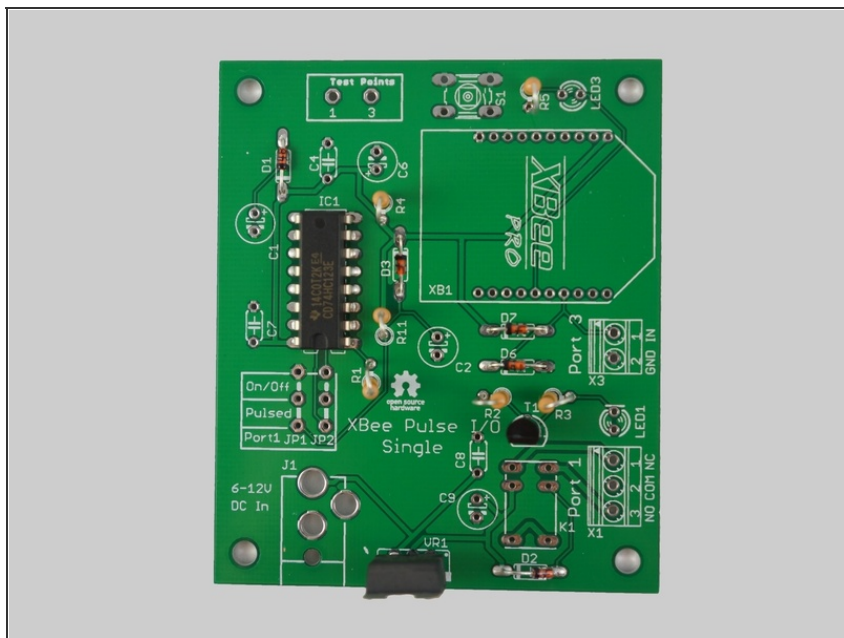
In this project we're going to assemble the XBee Pulse I/O Printed Circuit Board — an open-source hardware design which can be used to automate things wirelessly. This hardware is used in the "12,000-mile Universal Remote" project from Make Vol. 30.

Step 1 — XBee Pulse I/O Single Port Assembly Instructions



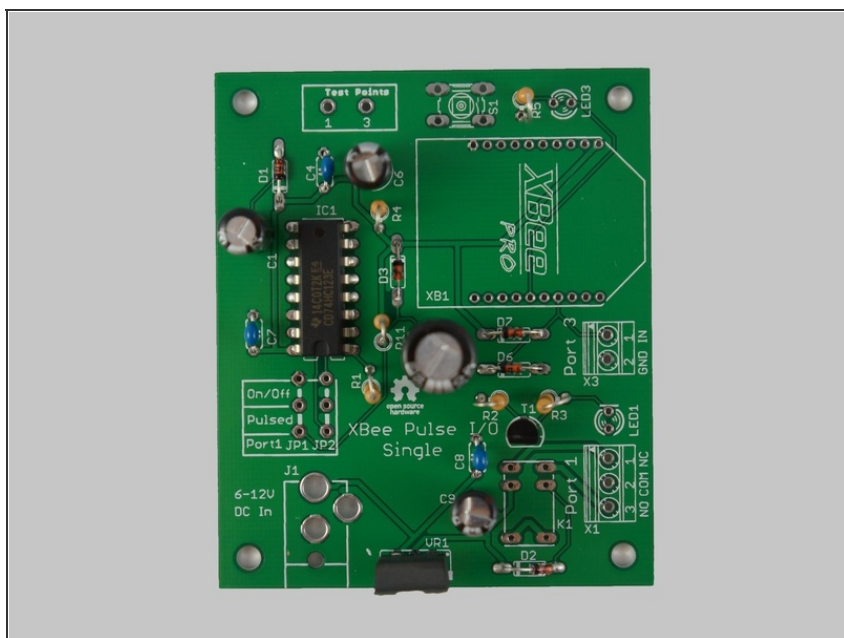
- Get that soldering iron nice and hot! It's time to begin assembly!
- Begin by soldering in IC1 (the 16-pin, 74H123 timer chip). Take care to orient the notch in the chip with the silkscreen.
- Next, solder in the five diodes D1, D2, D3, D6, D7. Make certain to orient the stripe with the stripe on the silkscreen.
- Solder in the NPN transistor T1. Match the shape with the silkscreen.
- Finally solder in the 3.3v voltage regulator VR1. The metallic heat sink on the regulator should be oriented with the solid white stripe on the silkscreen.

Step 2



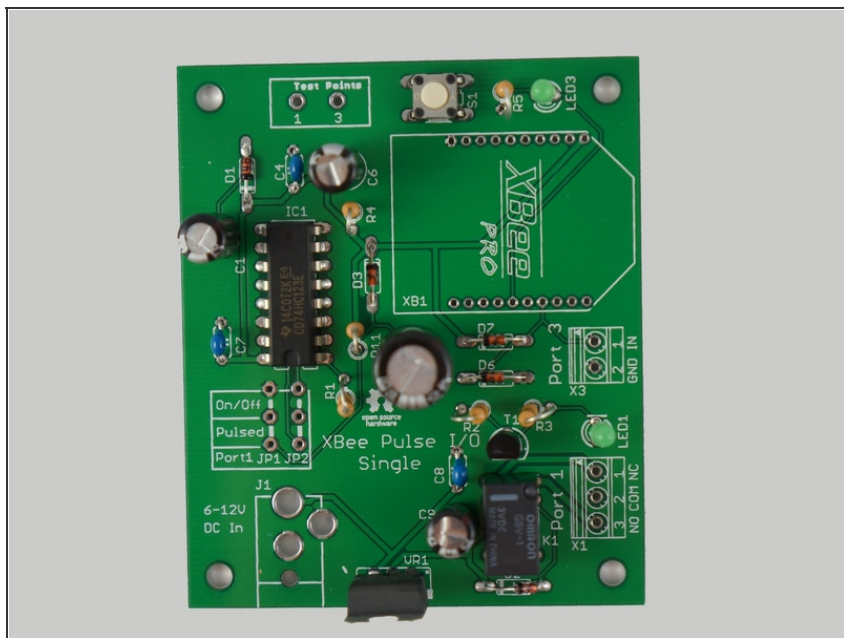
- You're about to solder lots of resistors. I think they look like little peanuts. Little striped peanuts.
- All the resistors are oriented on the board vertically to save space. You'll need to bend the resistor leads carefully in order to get them to go into the board.
- Solder on R3 and R5, the 180 ohm resistors (brown, gray, brown, gold).
- Next, solder R2, the 1K ohm resistor (brown, black, red, gold).
- Solder R1 and R11, the 10k ohm resistors (brown, black, orange, gold).
- Finally solder R4, the 18k resistor (brown, gray, orange, gold).

Step 3



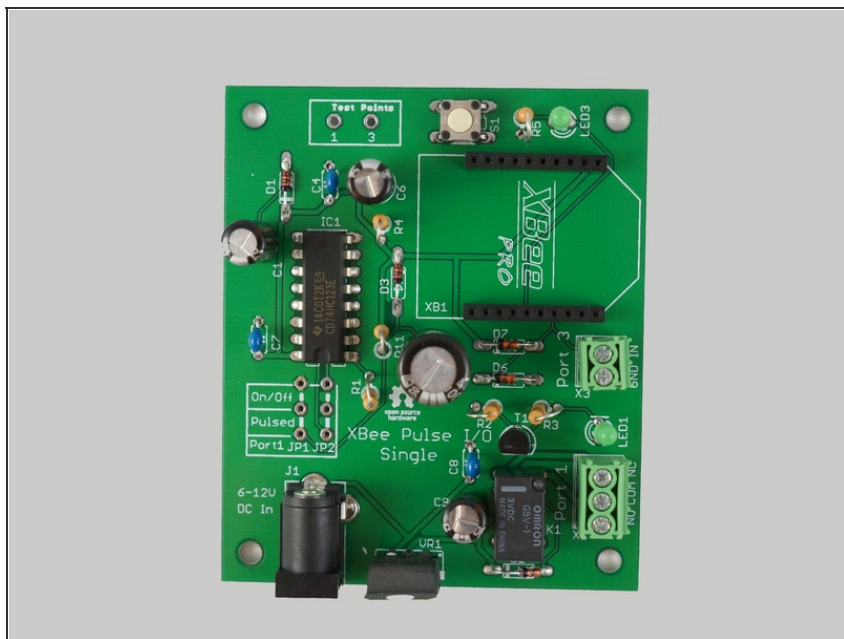
- Time for capacitors!
- Start by solder in the tiny 10pf capacitor C4. The capacitor will be labelled with an itty-bitty number 102. You may need a magnifying glass to read it. These ceramic capacitors have no polarity and can be put in the board in any orientation.
- Solder in the 0.01uF capacitors. They will be labelled with a small number 104.
- The next capacitors are electrolytic and have a polarity. This means they need to be placed in the board matching the long leg to the little + sign on the board.
- Solder in the 10uF capacitors C6 and C9.
- Solder in the 22uF capacitor C1.
- Finally, solder in the 47uF capacitor C2. It may be slightly larger than the silkscreen outline on the board.

Step 4



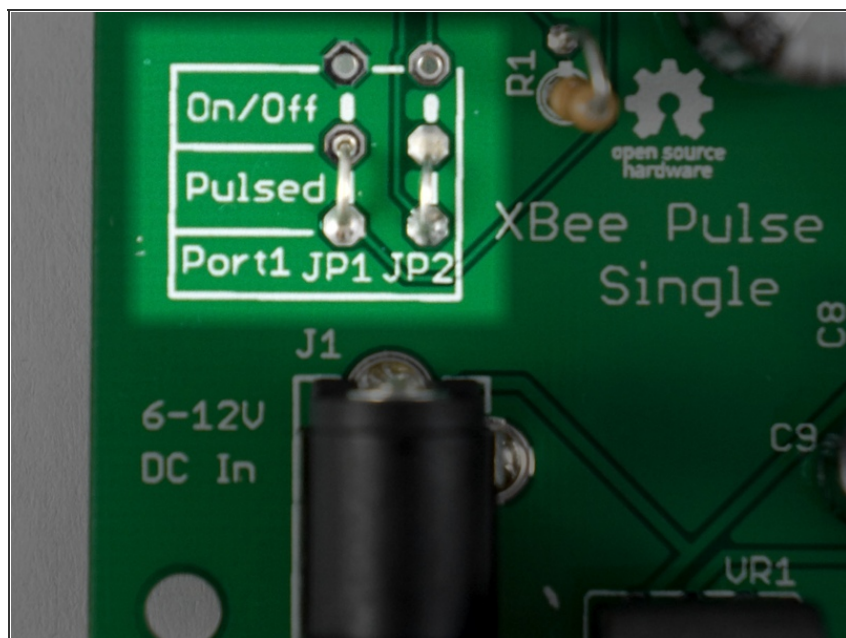
- Solder in the LEDs, LED1 and LED3. Insert the LEDs so that the short pin goes next to the flat line on the silkscreen.
- Solder in the relay K1.

Step 5



- You're almost done! Time to solder the sockets, switch, and terminal blocks.
- Next, solder on the power jack J1.
- Solder in both of the 10-pin 2mm sockets for the XBee.
- Solder on the tactile switch S1. It doesn't matter how it's oriented.
- Solder on terminal blocks X1 and X3.

Step 6



- The final step! You must have plenty of little bits of wire from all the leads you've been snipping off. Select two of these wires and bend them and insert them as shown into the PCB.
- These wires act as jumpers to select the output mode to the relay of the XBee Pulse I/O board.
- All you'll need now is a 5v center-positive power supply. You should be able to find one from a local electronics retailer or from an on-line supplier.
- That's it! You're done! You'll be up and pushing buttons from anywhere in no time!

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